# BLAKE RUPRECHT

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## SUMMARY

Interdisciplinary writer, technical communicator, and AI researcher with experience spanning software tools, research systems, prompt engineering, and digital content development. Skilled in onboarding, documentation, technical analysis, and building AI-driven workflows. Strong academic foundation in computer science and mechanical engineering, with hands-on experience developing real-time simulation environments, custom ML models, and explainability systems. Adept at working cross-functionally with researchers, engineers, and end users to improve adoption, communication, and usability.

## EXPERIENCE

**Independent AI Writer & Prompt Engineer** *05/**2023**-**present***

*Remote*

- Built and maintained personal knowledge base site using Hugo, Markdown, and Git
- Wrote 150+ public-facing articles at BlakeRuprecht.com, including 10–20 technical explainers focused on AI tools, software systems, and NLP concepts
- Published and maintained structured public writing and using Markdown, Hugo, and Git-based workflows
- Structured the site around thematic categories for discoverability and organization
- Designed custom templates, navigation structure, and content strategy
- Integrated simple CSS customizations to support day/night modes and accessibility
- Used prompt engineering techniques with ChatGPT and Claude to draft and refine ideas
- Analyzed personal text corpus (~500k+ words) using Python and NLP libraries (NLTK, pandas)
- Built personal research and reference systems to support long-form content synthesis
- Worked as a prompt engineer, writing training answers for reinforcement learning from feedback
- Conducted independent NLP research including large-scale corpus analysis with Python, NLTK, and pandas
- Over 1 year of experience writing and refining prompts for LLMs in real-world workflows and tool integrations, deep knowledge of LLM behavior, strengths/weaknesses, and how to design effective interactions

**Digital Marketing Specialist** *11/**2024**-01/**2025***

*Labyrinth Digital* *Denver, CO*

- Wrote internal guides (Google Docs, Word) documenting digital tools and repeatable workflows
- Developed Python (pandas, matplotlib) scripts to analyze internal marketing campaign data
- Built charts, graphs, and decks for leadership to summarize trends and insights
- Designed and maintained spreadsheet tools for calculating campaign performance metrics
- Developed Shopify website upgrades and coded Google Analytics implementation
- Wrote 30+ newsletters, ads, social media blurbs for seven different companies
- Maintained written records of digital processes and updated stakeholders via slide decks

**Research Assistant** *05/**2018**-05/**2023***

*University of Missouri* *Columbia, MO*

- Developed real-time spatial analysis software for object detection in simulation environments
- Built simulation environments integrating ROS, Unreal Engine 5, and C++ terminals for live AI systems

- Co-authored eight research papers, published five in international journals and conferences
- Designed and trained custom Python/PyTorch models for parts-based object reasoning
- Created technical documentation, SOPs, and onboarding materials for lab projects
- Maintained documentation using Git; collaborated on docs-as-code alongside software developers, supported agile workflows with live version tracking
- Supported QA and analysis for explainable AI pipelines and remote sensing research tools
- Co-authored technical papers, journal articles, and conference presentations on AI and human-AI collaboration with a team comprised of me and four professors.
- Gave presentations to researchers and engineers on internal tools and methodology
- Labeled geospatial data and helped implement QA workflows for image analysis pipelines
- Supported explainable AI efforts for computer vision research (thesis-related)

**Orientation Leader** *01/**2017**-07/**2017***

*University of Missouri* *Columbia, MO*

- Led small-group sessions for incoming students, building community and easing their transition
- Presented to large parent audiences, communicating university values and resources clearly
- Gave 30+ campus tours weekly, adapting messaging to diverse families and fielding questions
- Acted as main point of contact for students and parents, resolving concerns with empathy
- Managed group logistics to ensure smooth orientation flow and minimize confusion
- Represented the university with warmth, professionalism, and clear communication

**Camp Counselor, BablerWiLD** *04/**2016**-08/**2016***

*Parkway-Rockwood School District* *Columbia, MO*

- Led outdoor education activities for K-5 students, fostering enthusiasm for learning and the outdoors
- Developed engaging group learning experiences that built outdoor confidence and skills
- Fostered a positive and respectful environment focused on having fun and staying active

## SKILLS

**Documentation**: User Instructions, Slide Decks, SOPs, Onboarding Materials, Process Guides, Technical Explainers, Markdown, Hugo, Docs-as-Code

**Tools**: Python (data analysis, scripting, pandas, matplotlib, NLTK), Git, HTML/CSS, JavaScript, Hugo, Google Workspace, LaTeX, Overleaf, WordPress, ROS, Unreal Engine 5, PyTorch, Overleaf, Google Suite, SEO, Klaviyo, Wordpress, Shopify, SEMRush

**AI:** Prompt Engineering, LLM Testing (ChatGPT, Claude), NLP, Corpus Analysis, Explainability, AI-enhanced Writing, Knowledge Base Development, Content Structuring

**Analysis & Visualization:** Pandas, matplotlib, seaborn, spreadsheet modeling, slide deck creation, structured data reporting

**Workflows:** Version Control, Cross-functional Collaboration, Agile Development Support, Documentation Strategy, Data-Driven Insight Delivery

## EDUCATION

**M.S. in Computer Science**, *University of Missouri (Columbia, MO)*, GPA: 3.9 *08/**2019**-05/**2023***

- Thesis: *EXPLAINABLE PARTS-BASED CONCEPT MODELING AND REASONING*
- Focus: Explainable AI, Human-Centered Design, Simulation Environments, NLP
- Technical tools: Python, PyTorch, ROS, Unreal Engine 5, Git, LaTeX

**B.S. in Mechanical Engineering**, *University of Missouri (Columbia, MO)*, GPA: 3.9 *08/**2015**-05/**2019***

- Senior Capstone: *Automatic Beer Brewing Robot*
- Awards: Mizzou Scholars Award, Summa Cum Laude

## PUBLICATIONS

**M.S. Thesis**

- **B. Ruprecht**. *EXPLAINABLE PARTS-BASED CONCEPT MODELING AND REASONING*, University of Missouri, 2023

**Journal Articles**

- A. Cannaday, C. Davis, G. Scott, **B. Ruprecht**, and D. T. Anderson, *Broad Area Search and Detection of Surface-to-Air Missile Sites Using Spatial Fusion of Component Object Detections from Deep Neural Networks*, IEEE JSTARS, 2020

**Conference Papers**

- B. Young, D. T. Anderson, J. Keller, F. Petry, C. Michael and **B. Ruprecht**, *Human-Oriented Fuzzy Set Based Explanations of Spatial Concepts*, WCCI 2023
- **B. Ruprecht**, D. T. Anderson, F. Petry, J. M. Keller, C. Michael, A. Buck, G. Scott, C. Davis, *Concept Learning Based on Human Interaction and Explainable AI*, SPIE 2021
- **B. Ruprecht**, W. Wu, M. Islam, D. T. Anderson, J. Keller, G. Scott, C. Davis, F. Petry, P. Elmore, K. Nock, E. Gilmour, *Possibilistic Clustering Enabled Neuro Fuzzy Logic*, WCCI 2020
- **B. Ruprecht**, C. Veal, A. Cannaday, D. T. Anderson, F. Petry, J. Keller, G. Scott, C. Davis, C. Norsworthy, P. Elmore, K. Nock, E. Gilmour, *Neuro-fuzzy logic for parts-based reasoning about complex scenes in remotely sensed data*, SPIE 2020

**Poster Presentations**

- **B. Ruprecht**, C. Veal, B. Murray, M.A. Islam, D.T. Anderson, F. Petry, J. Keller, G. Scott, and C. Davis, *Fuzzy Logic-Based Fusion of Deep Learners in Remote Sensing*, FuzzIEEE 2019

## CLIPS & PROJECTS

**BlakeRuprecht.com** | HTML, CSS, JS, Git, Hugo *2023-present*

- Published five technical research papers in international conferences/journals
- Presented at three international conferences, gave numerous seminars

**Neuro-Symbolic Concept Learner** | Python, PyTorch, Numpy, Pandas, Matplotlib *2019-2022*

- Published five technical research papers in international conferences/journals
- Presented at three international conferences, gave numerous seminars

**Unreal 5 Drone Simulation** | Python, MATLAB, C++, Unreal5, ROS, WSL *2022-2023*

- Wrote extensive technical documentation to improve onboarding to the project
- Developed Python drone agent in ROS utilizing C++ MATLAB wrapper to analyze data